DOCUMENT RESUME

ED 105 897 IR 001 940

AUTHOR Avner, R. A.
TITLE The Evolutionary Development of CAI Evaluation Approaches.
PUB DATE Apr 75
NOTE 5p.; Paper presented at the Annual Meeting of the American Educational Research Association (Washington, D.C., March 30, 1975 through April 3, 1975)

EDRS PRICE MF-$0.76 HC-$1.58 PLUS POSTAGE
DESCRIPTORS *Computer Assisted Instruction; *Educational Development; Educational Innovation; *Educational Planning; Educational Research; *Evaluation Methods; Instructional Design; Instructional Media; Media Research
IDENTIFIERS Evolutionary Development Program; *PLATO

ABSTRACT

The role of evaluation in the development of evolutionary procedures is briefly described and highlighted. Four aspects of evaluation technique which distinguish efficient from inefficient CAI programs are identified. Evaluation of products is also characterized. Findings of a continuing survey of students via questionnaire as to the value of certain courseware are listed. (SK)

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED105897

IR001940

The Evolutionary Development of CAI Evaluation Approaches

R. A. Avner

University of Illinois, Urbana

Evaluation is a pervasive part of any planning or decision-making procedure. It is particularly important in procedures which are evolutionary in nature since such procedures tend to require decisions which cannot be made on the basis of predetermined rules. The fact that these decisions generally must be made rapidly and that they frequently require detailed knowledge of a host of tangential issues means that most formative evaluation is carried out by those directly involved in the work rather than by a central administrator or a professional evaluator. Such decentralized operations can be quite difficult to describe, much less evaluate, from outside with any degree of accuracy. Unfortunately, in current CAI development, it is the functioning of these decentralized processes that is often of more interest than their end products. For example, the procedures followed in the efficient production of effective instructional materials can rarely be inferred from a summative evaluation of the completed lesson material. Yet, these processes are likely to be of far more general interest than the products. Periodic interviews or logs can provide some information on process data, but frequently it is necessary for an evaluator to become immersed in the process itself before an accurate view can be obtained (Rippey, 1974; House, 1974). For instance, monitoring of many independent PLATO curricular development efforts over the past years has indicated four basic areas in which effective groups appear to differ from inefficient or ineffective groups.

1) Members of effective groups have or rapidly develop experience in individualized instruction and in the relevant subject-matter area.

BEST COPY AVAILABLE

2) Effective groups tend to develop or adopt standardized procedures and techniques only after direct instructional experience indicates appropriateness to the aims of the group. Effective groups also make significantly greater use of standardized techniques.

3) Effective groups identify potential problems earlier and make more active efforts to gather information and experience needed to overcome such problems. For example, effective groups tend to use student and peer evaluation of preliminary instructional designs earlier and more extensively than ineffective groups.

4) Effective groups tend to use all available evaluative information as soon as possible for modification of instructional materials. Thus, while both effective and ineffective groups may gather on-line student response data, ineffective groups tend to simply store the information without processing it or use it solely for production of administrative reports.

In all but the first of these four areas, information from interviews, logs, or progress reports is usually insufficient to distinguish effective groups from ineffective groups. Only direct, frequent, and unobtrusive observation can determine whether a described operation was performed competently or in a perfunctory and unproductive manner. Unfortunately such extensive observation is very costly in resources and is effective only where the outside evaluator is perceived as, and in fact is, interested in describing the process and in improving the group's effectiveness rather than in passing judgment.

While process evaluation is currently of major interest within the PLATO group, product evaluation cannot be overlooked. Here also, an evolutionary development program produces complications as well as opportunities. A basic conflict results from the simultaneous operation of PLATO both as a service and as a research facility. The evolutionary approach demands, for example, that experience be gathered in a setting as close as possible to the current concept of an ultimate application of the system. Thus, PLATO must be used extensively as if it were a final product devoted solely to instruction in order that realistic data be gathered. At the same time, changes are continually being made to PLATO as a result of those data. Among the uncertainties that arise are questions such as: "To what extent are summative evaluations of products such as courseware affected by presentation via a constantly changing medium?" Answers to such questions must be gathered through close and continuous contact with the current consumers: the students and instructors. Among the findings to date:

1) Students are able to distinguish reliably between limitations of the medium and courseware.
2) Initial student attitudes toward both courseware and medium are heavily influenced by the attitudes of their instructors.
3) Attitudes toward the medium stabilize within the first few hours of exposure and are generally favorable.
4) Most negative student comments have to do with factors which impede their progress through the instructional sequences. This includes such problems as system unreliability, poorly written course materials, and lengthy attitude questionnaires.

Unfortunately, the most rapid and reliable guage of student and instructor attitudes is provided by their response to frequent questionnaires and

interviews. To maintain this flow of information without either alienating the source or taking up excessive quantities of time, item sampling techniques used in commercial consumer attitude surveys have been adopted.

The full range of applications of evaluation procedures in an evolutionary development and their results can only be suggested by the brief descriptions above. It should, however, be clear that such a setting provides gratifying evidence for evaluators who have held that the evaluation process should be considered as an integral part of educational research and development rather than a process which is preformed after everything else is finished.

References

House, E. R. The Politics of Educational Innovation, Berkeley: McCutchan, 1974.

Rippey, R. M. (Ed). Studies in Transactional Evaluation, Berkeley: McCutchan, 1973.